

Integrating community service-learning into a dental hygiene curriculum: a document analysis

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ABSTRACT

Background: Community service-learning (CSL) aims to promote civic engagement among students and deepen their understanding of social issues, connecting students to communities where they may practise as future health care providers. This study's aims were two-fold: first, to determine whether incorporating a non-dental community service-learning experience into a fourth-year behavioural science course can develop abilities related to the dental hygiene baccalaureate competencies; second, to examine the overall student learning experience. **Methods:** Seven community agencies presented projects to the dental hygiene class, and students individually selected their top 3 choices. Projects were diverse, ranging from literacy tutoring to creating a program plan or hosting a public virtual event with an interprofessional health panel discussing nutrition. Dental hygiene students participated in a 20-hour placement with one community project and completed individual reflection journals that focused on their experience. Using a document analysis approach, the authors examined the reflection journals through an iterative process to identify themes. **Results:** Ten student reflections were analysed and three themes emerged: 1) increased social awareness; 2) application of dental hygiene core competencies; and 3) the challenges of the learning experience. Students consistently discussed how the project allowed them to apply 5 dental hygiene core competencies and how their learning experience aligned with their future professional role as a dental hygienist. Students articulated increased understanding of their individual privilege and awareness of social issues in their community. **Conclusions:** Participation in non-dental CSL increased dental hygiene students' social awareness of local communities. Students demonstrated an ability to apply their learning to their developing competencies as future dental hygienists.

RÉSUMÉ

Contexte : L'apprentissage axé sur les services communautaires vise à promouvoir l'engagement civique des étudiants et à approfondir leur compréhension des enjeux sociaux, en mettant les étudiants en contact avec les communautés où ils peuvent exercer en tant que futurs fournisseurs de soins de santé. Cette étude avait 2 objectifs : premièrement, déterminer si l'intégration d'une expérience d'apprentissage par service communautaire non dentaire à un cours de quatrième année de science du comportement peut permettre de développer des capacités liées aux compétences du baccalauréat en hygiène dentaire; deuxièmement, examiner l'expérience d'apprentissage globale de l'étudiant. **Méthodes :** Pour l'étude, 7 organismes communautaires ont présenté des projets à la classe d'hygiène dentaire et les étudiants ont chacun sélectionné leurs 3 premiers choix. Les projets étaient diversifiés, allant du tutorat en alphabétisation à la création d'un plan de programme ou à l'organisation d'un événement public virtuel avec un panel interprofessionnel de la santé qui discutait de la nutrition. Les étudiants en hygiène dentaire ont participé à un stage de 20 heures dans le cadre d'un projet communautaire et ont consigné leurs réflexions dans un journal individuel axé sur leur expérience. À l'aide d'une approche d'analyse documentaire, les auteurs ont examiné les journaux de réflexion lors d'un processus itératif pour cerner les thèmes. **Résultats :** Les réflexions de 10 étudiants ont été analysées et 3 thèmes sont ressortis : 1) une sensibilisation sociale accrue; 2) l'application des compétences de base en hygiène dentaire; et 3) les défis de l'expérience d'apprentissage. Les étudiants ont systématiquement discuté de la façon dont le projet leur a permis d'appliquer 5 compétences de base en hygiène dentaire et de la façon dont l'expérience d'apprentissage s'harmonisait avec leur futur rôle professionnel d'hygiéniste dentaire. Les élèves ont noté une meilleure compréhension de leurs privilèges individuels et une meilleure sensibilisation aux enjeux sociaux dans leur communauté. **Conclusion :** La participation à un apprentissage axé sur les services communautaires non dentaires a accru la sensibilisation sociale des étudiants en hygiène dentaire aux communautés locales. Ils ont démontré leur capacité à appliquer leur apprentissage à leurs compétences en développement en tant que futurs hygiénistes dentaires.

Keywords: communication; community; competency-based education; cultural awareness; leadership; professionalism; social responsibility
CDHA Research Agenda category: capacity building of the profession

PRACTICAL IMPLICATIONS OF THIS RESEARCH

- Integrating a non-dental community service-learning (CSL) experience into dental hygiene curricula increases social awareness among dental hygiene students and reinforces their social responsibility to the communities they will serve.
- CSL provides an experiential learning opportunity for students to apply and further develop the dental hygiene core competencies and prepares students for their health professional role.
- Critical reflection of challenging encounters during CSL helped facilitate personal and professional development.

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INTRODUCTION

Dental hygiene education is predominantly clinically practice-based, with educational techniques such as simulation and experiential learning widely implemented into curricula. The *Canadian Competencies for Baccalaureate Dental Hygiene Programs* (CCBDHP)¹ have been adopted into the dental hygiene program at the University of Alberta. The CCBDHP provides a competency profile with domains divided into 3 sections: knowledge of the discipline, core competencies, and dental hygiene service competencies.¹ Professionalism, communication, collaboration, coordination, research use, and leadership are the 6 core competencies.¹ Dental hygiene service competencies are clinical therapy, health promotion and disease prevention activities, oral health education, advocacy, and policy use.¹ It is assumed that baccalaureate degree graduates will demonstrate a greater cognitive ability when working with groups and communities compared to diploma-level graduates.² Furthermore, research has reported that fourth-year dental hygiene students in a baccalaureate program have expressed less confidence in their educational preparedness in the domains of leadership, policy use, health promotion, and advocacy compared to other competencies.³ Baccalaureate dental hygiene students have identified that, to better support their preparedness for practice, a shift in the curriculum is needed from clinical practice settings within the university to external community settings.^{3,4}

Experiential learning opportunities, such as service learning, have been utilized in health professions education to engage students with active learning through community engagement opportunities.⁵⁻⁸ Service-learning experiences help prepare future practitioners for interprofessional collaboration, cultural awareness, and civic engagement.⁶⁻¹⁰ A range of service-learning opportunities exists in dental hygiene education. However, the primary focus of these learning activities is on providing oral care services in a vulnerable population sector.¹¹⁻¹⁴ There are limited opportunities for University of Alberta dental hygiene students to participate in projects where the community partner has identified the service activity requiring student participation.

Community service-learning

Students participating in community service-learning (CSL) provide service in response to community-identified concerns and learn about the connection between the service and their academic coursework.^{13-17,18} CSL combines community service work, theoretical course content, and active student reflection to allow students to thoughtfully examine the important relationship that exists between a future health care provider and the community.^{13,15,17,18} The CSL program offers students the opportunity to engage and work closely with a local community group.¹⁹ Reciprocal learning occurs: community and students learn from one another, with each mutually benefitting.^{16,17,20,21}

Linking community organizations with postsecondary students is thought to deepen student learning during their academic course work, with its application in a real-world context.¹³⁻¹⁵ CSL seeks to deepen students' understanding of social issues, connecting students to communities where they may practise as future health care providers.

Reflection is noted as a key element of CSL to connect theory and practice.^{13,21,22} The aim of reflection is to deliberately draw meaning from the experience.¹⁵ Guided student reflection allows students to purposefully connect their academic course objectives with the service to the community and in the context of developing competency for entry-to-dental hygiene practice. Reflection also aims to help the student identify the personal impact a service-learning project has had on them and how their perspectives may have been challenged or enhanced.^{15,21,23} Research has shown that there is a greater need to incorporate the concept of critical reflection into dental hygiene education to help assess and challenge students' underlying beliefs, values, assumptions, and approaches to practice.³

In 2021, the University of Alberta Bachelor of Science (Dental Hygiene) program partnered with the university's office of CSL and implemented a non-dentally related community service-learning experience into a 2-term, fourth-year behavioural sciences course. The course objectives focus on learning in a community and societal context to address oral health inequities and promote a commitment to serving society. Concepts focus on health promotion, disease prevention, health policy and systems, advocacy, and leadership initiatives. Furthermore, it is significant that the community projects put forward by the CSL partners are not related to dental hygiene or oral health in general. Currently, the CSL program is offered at the University of Alberta through the Faculty of Arts; the learning activities are integrated into academic courses in various disciplines and health professions programs, such as medicine, nursing, and pharmacy. This study aimed to determine whether incorporating a non-dental community service-learning experience into a fourth-year behavioural science course can develop learners' abilities related to the dental hygiene baccalaureate core competency of leadership and the dental hygiene service competencies of health promotion, advocacy, and policy use. A second aim was to examine the overall learning experience of the students.

METHODS

This study received ethics approval from the University of Alberta Research Ethics Board, and all participants provided written informed consent (Pro00118079_AME1).

Community partners

Seven community partners presented projects to 43 fourth-year dental hygiene students in fall 2021, and students individually selected their top 3 choices. Six community agencies were non-profit organizations; one

was a municipality. Due to the COVID-19 pandemic, 6 CSL experiences were virtual, and 1 was in person. The community projects served diverse population groups and are briefly described as follows:

- The municipality's project centred on students conducting audits of city-owned public spaces to assess adherence to a new policy focusing on creating accessible spaces for individuals with disabilities.
- Skillcity Institute had students create a program plan to help youth from underrepresented communities develop skills in relation to science, technology, engineering, and math (STEM).
- NSTEP involved students with teaching school-aged children about the importance of nutrition and physical activity.
- The Learning Centre Literacy Association involved students in tutoring adults for literacy to help prepare for the General Education Development (GED) test.
- Migrant Alberta introduced students to migrant and undocumented workers; students were tasked with developing a campaign to promote access to health care.
- Converse and Cook involved students in planning and hosting a public virtual event with an interprofessional health panel discussing nutrition.
- Lady Flower Gardens involved students in doing a cost-benefit analysis for creating a community gardening space intended to serve as a site of intersectionality combined with other community supports for people who have experienced significant challenges.

Preparing students for CSL

Based on individual selections, students completed a prereflective exercise about their assigned community partner. Preassignment research in CSL involves students seeking information about the agency, characteristics of the community members served, mission and vision, and funding sources.²³ Students conducted web-based research on the community partner and were required to describe the history, mission, and vision of the organization; name services and programs offered by the organization; and discuss their preconceptions of the learning that would transpire as a result of a CSL placement. Preparation for service learning involves helping learners understand the purpose of the community agency and the populations they will interact with and serve.²³

Working in small groups of 6 or 7, students participated in a 20-hour placement with 1 community project. Advocates of service learning argue that a sustained amount of time in service is needed and note that a minimum of 20 hours of service in a single project is required to achieve minimum competency.²³

Reflective journals

An effective method of reflection for students engaged in service learning can take the form of written journaling followed by a guided group discussion that builds on the observations written in the journals.²³ Guided reflection can happen prior to, during, and following the CSL experience.²³ During the CSL experience, students submitted 3 reflective entries that discussed their experience, followed by small-group discussions of the experience. Students' reflections followed Boud's^{24,25} 4 Rs of Reflection (revisit, react, relate, respond). Following the CSL experience, students completed a critical reflection journal using the 4 Rs framework, including guiding questions for each of the 4 steps. "Revisit" referred to students recollecting the experience and remembering if any particular events made an impact on them.²⁵ "React" involved students making meaning of the situation by asking them to reflect on the affective aspect of the experience.²⁵ "Relate" allowed students to analyse whether any experiences challenged their value systems and to connect the CSL experience to personal or other educational experiences. "Respond" allowed students to evaluate the relevance of learning from CSL experiences in relation to their future role as a dental hygienist. Journals were assessed by the course instructor using a detailed rubric that was provided to students at the beginning of the learning activity. The rubric assessed the content and quality of the reflection, writing style, and formatting.

Purposeful sampling was used in this study. Forty-three fourth-year dental hygiene students were invited by email to participate in the study. Ten students consented to have their reflective journals included for research purposes. All identifying information was removed prior to the review of the journals by the 2 investigators. Both investigators (KK and SC) are experienced in qualitative research methods. One investigator (SC) has supervised graduate students who have undertaken qualitative research and has been the lead on other qualitative research studies.

Data collection and analysis

Two investigators collected data through a document analysis of student reflective journals. Document analysis is a systematic procedure for reviewing and synthesizing data contained in documents.²⁶ Documents that may be used for systematic evaluation as part of a research study take a variety of forms and may include diaries and journals.²⁶ Document analysis involves an iterative process that begins with skimming the document followed by a thorough examination, coding, and category construction of the data to identify themes.²⁶ Passages of journals were labelled with a broad code. Similar ideas across journals were given the same broad code that was determined from the initial reflection. Associations and distinctions were identified within codes, allowing codes to be categorized into expansive categories.²⁷

Relationships and core meanings among the categories were identified to help group categories into key themes. Both the principal investigator and co-principal investigator independently participated in developing inductive codes, generating categories, interpreting patterns, and constructing themes. The 2 investigators then met to compare and reach a consensus on coding. Procedures of peer debriefing and an audit trail were kept to ensure the rigour of the research process.

RESULTS

Three themes emerged from the analysis of the reflective journals: 1) increased social awareness; 2) the application of dental hygiene core competencies; and 3) the challenges of the learning experience.

Increased social awareness

Within the theme of increased social awareness were 3 subthemes: 1) recognition of social determinants of health (SDH); 2) learning about members of the community; and 3) social responsibility. Each subtheme is described below.

Recognition of social determinants of health

The CSL experience increased students' recognition of SDH through real-world experiences. Students were able to connect theoretical information presented in didactic lectures on SDH with their CSL experiences.

From the literacy project, students' experiences deepened their understanding of how literacy is linked with the ability to be employed, access to health care, and one's overall well-being. One student was tutoring 2 young women who were first-generation Canadians whose parents were born in Egypt. The student's reflection expressed how the young women were unable to speak either English or their parents' mother tongue of Arabic fluently and how multiple cultural, literacy, and social factors were affecting the well-being of both young women:

It feels like they are stuck in between two cultures and two countries, as if they don't feel like they belong to either. One of the sisters told me that she feels uncomfortable whenever she goes back to Egypt. She is also finding trouble adjusting here, as she is unable to find a job or live her life comfortably. They were the prime example of how the social determinants of health affected their lives and their well-being. (Participant 7)

Another student's experience involved observing a book club for children in grades 1 to 3 who had difficulties speaking and understanding English as they were recent newcomers to Canada. The student was able to connect the observation to the importance of advocacy efforts related to health promotion in dental hygiene. The student asserted:

Difficulties with literacy can make it extremely challenging to receive access to care; those individuals may not know how to find proper dental care, or perhaps are afraid or unable to attend appointments due to [their] inability to communicate with oral health professionals ... I will always reflect on this experience with HACK [Healthy Active Community Kids, associated with Skillcity Institute], and continuously strive to come up with ways I can help promote equal access to care for all people through advocacy efforts. (Participant 10)

Learning about members of the community

Students emphasized that being in the community increased their understanding of the complexity of who resides in our local communities. Community interactions helped challenge students' personal assumptions and resulted in feelings of privilege. A component of the dental hygiene curriculum includes content related to marginalized groups and how these groups are at greater risk for poorer health outcomes. For example, from the literacy project, it was evident that students had misconceptions about who the community members would be who required literacy support. Students believed they would be tutoring recent newcomers as a marginalized group and were surprised to learn that Canadian-born individuals also experience challenges with literacy:

Prior to my CSL placement, I held the assumption that the students I will be tutoring are immigrants with low literacy skills. When I had my first session tutoring for a creative writing class, I was quite surprised to discover that most of the group of students I was tutoring were, in fact, Canadian-born individuals who were raised in Canada since birth and struggled with other forms of literacy, such as writing. (Participant 1)

Another student group was tasked with developing a STEM program: the target community group were individuals who were Black, Indigenous, and people of colour. This project involved students researching communities in Edmonton to identify the target community for the program. The experience illuminated how students were unfamiliar with the communities in which they reside and the drawbacks of their personal lack of awareness.

Made me realize how unfamiliar I was with the demographics of the city I live in and how this might be a barrier to the most effective implementation and utilization of programs. Being a future health care worker [dental hygienist] who realizes the importance of recognizing and

addressing socioeconomic disparities, I was almost disappointed in myself for not having a better understanding of how to identify these populations. (Participant 9)

Increased learnings about community members fostered feelings of privilege in students. Students reflected on their own childhood experiences and how those experiences shaped their adulthood. Students discussed how their ability to speak English with classmates, teachers, and parents from a young age was a blessing because they did not struggle in school like some of the children they observed during their CSL placement. Students recognized that education is a luxury and that having parents who were educated and involved in their child's studies can help promote success.

Whenever she would ask for help with her homework, she would be dismissed as her parents were unable to help her. I learned two things from this encounter. The first was that while education is taken for granted by many, it is a luxury for some people who are striving for a better life. It made me realize how privileged I am to have been brought up in a family with educated parents who cared about my education. Growing up, I used to always receive help from my parents with my homework. I never questioned how my life would have been if I was uneducated. (Participant 7)

Social responsibility

The CSL placement for dental hygiene students instilled a sense of social responsibility that extended beyond oral health. Students recognized that some CSL projects and activities required knowledge that was not included in their dental hygiene curriculum. They felt a professional obligation to fulfill that knowledge gap to meet the community's needs and promote health.

The [CSL] experience reflected my values for social responsibility and community. As a health care professional, I am in a unique and privileged position to be able to interact with members of my community to improve their health. The circumstances of this [CSL] experience were different because these interactions were outside the scope of my expertise. Therefore, this presented the challenge of filling my knowledge and these gaps. This required extensive research on the topic, as well as collaboration with a variety of specialists. Ultimately, overcoming this challenge was instrumental in applying my skills and values to fully benefit the community. (Participant 8)

Application of dental hygiene core competencies

The community service-learning projects presented to dental hygiene students were aligned with the overall course objectives and content. Despite the projects' focus on community needs and aspects other than dental hygiene, students reflected on how the CSL experience allowed them to apply 5 of the 6 dental hygiene core competencies.

Communication and professionalism

Students often recognized the importance of effective communication. At times, the CSL experience prompted them to execute their communication strengths; for others, it pushed them out of their comfort zone to be more vocally expressive. The experiences also highlighted challenges with communication, and students experienced the negative implications of poor communication in a team environment. Students described how the CSL experience enhanced their awareness of the importance of effective communication and were able to apply the learning to their future role as a dental hygienist. Students recognized the relationship between professionalism and communication.

I feel as though one cannot act in a professional manner without demonstrating proper communication, and similarly, I feel that one cannot communicate effectively in the workplace without being professional. (Participant 10)

Collaboration, coordination, and leadership

The importance of collaboration was highlighted during the CSL project. Students noted that weekly meetings were an exercise in collaborative practice because of variations in students' skills and that "collaboration happened between many different professionals to give rise to the final project and required respectful participation and compromise to meet the end goals of the [community] partner." (Participant 2) Another student commented:

The importance of interprofessionalism is highlighted in much of our [university] coursework through simulated workshops and theory. [CSL] was the first time I have experienced interprofessional collaboration in a real-life context. Therefore, this presented the challenge of incorporating theory into practice. Ultimately, I believe we were successful in overcoming this challenge. This was primarily due to the immense support provided to us by the CSL [administrative] team. (Participant 8)

One student discussed how their group community project required considerable coordination among group members, where each person was responsible for a specific task. This resulted in each team member taking on individual leadership roles based on their personal strengths or areas

of expertise. From a different community project, a student recognized that the successful outcome of their CSL project was due to effective coordination:

Certainly, our CSL project was not founded on the practice of hygiene, nor was its focus on oral health; however, the principle of this competency [coordination] still holds true: we were a group of varying professionals and skills sets who were coming together with the goal of improving the nutrition knowledge of the community at large, and it was because of the coordinated efforts of all involved that we were able to deliver a successful [nutrition education] panel. (Participant 2)

Challenges of the learning experience

Students often reflected on the challenges they encountered during their CSL placement and reported both frustrations and rewards. Some students appreciated the creative freedom and the way the student perspective was encouraged during the CSL experience. Students valued that their voices were heard by community partners and contributed their ideas to the project plan. Other students struggled with the openness of the projects in contrast to their other, often structured dental hygiene program learning experiences.

At the beginning of the CSL placement, I had concerns around the lack of direction and lay-out [for the project] because there was no set project or assignment to work on. The [year-end] presentation wrapped up our placement; it felt rewarding and as if we had accomplished something impactful. (Participant 4)

Other students were challenged by the fact that CSL project descriptions were not directly related to oral health. Students initially struggled with recognizing what prior knowledge, ideas, and strengths could be incorporated into the project. However, other students were able to recognize how the project had broader implications and was community directed:

This CSL placement itself is a reflective practice as it shifts perspective away from the self and instead toward the 'other' and determines not what the partner can do for me, but what I can do for the partner. This is not just in a professional capacity, either, as Converse and Cook [project name] may not have much theoretical knowledge applicable to [dental] hygiene per se, but in a personal capacity it stretched me to think bigger than my career path and determine what skills I possess which may

benefit my community partner's intentions with this project. (Participant 2)

DISCUSSION

CSL experiences are noted to transform students' existing knowledge and help develop greater social awareness.^{20,22,28-30} Additionally, CSL has the ability to decrease stereotypes that students may have about individuals.⁷ Findings in this study illustrate that students were surprised to learn that Canadian-born individuals experience similar challenges to marginalized groups with such issues as literacy. Student reflections highlighted that the CSL experience challenged their preconceptions and expanded their understanding of local community members.

To deepen dental hygiene students' understanding of the social determinants of health (SDH), it has been suggested that students should have opportunities to provide clinical services for diverse populations.^{9,11,21} Other research has also reported that CSL and critical reflection increased dental students' understanding of community issues and reinforced their social contract with the community.¹² Through students' personal interactions, conversations, and engagement with community members during the CSL experience, students achieved a greater understanding of SDH, beyond what is formally learned in a classroom setting or chairside in a clinical dental hygiene setting. Student participation in a non-dental CSL experience provided them with an opportunity to understand SDH within the dental hygiene context but also to apply these concepts more broadly in the community.

Researchers argue that traditional classrooms are unable to provide students with practical experiences that allow them to be effective in the workplace.^{30,31} Community service-learning results in the development of practical and invaluable skills that can be beneficial for students in the workplace and throughout their career.^{30,31} Dental and dental hygiene programs have found that community-based service-learning experiences facilitate personal and professional development of students.^{13,20} Similarly, the findings of the present study show that students recognized the application of CSL to their future role as a dental hygienist. Stemming from the CSL experience, students often discussed how they applied their communication skills, reinforced the importance of professionalism, practised working in a team, utilized their personal strengths, and advanced their problem-solving skills. Levkoe et al.³¹ described how students who engaged in CSL identified valuable teamwork skills that developed as a result of the experience in a professional environment: skills such as collaboration, communication, negotiation, and patience. Similarly, dental hygiene students were able to see the value of those skills in a real-world setting outside their institutional learning context.

The literature reports that learners are challenged with

the lack of structure associated with CSL experiences.⁷ This aligns with findings in the current study where students expressed that CSL experiences were challenging due to the lack of structure. However, students felt a sense of accomplishment and reward when they were able to overcome the challenges by applying skills of professionalism, communication, and teamwork.

Other research has noted that it cannot be assumed that dental hygienists will internalize their role as a health professional in the context of the community.³² Professionalism includes an obligation to work for society's welfare, which includes general health.⁶ The current study findings show that students felt their roles extended beyond the dental hygiene context and believed that following their CSL experience, they could be overall champions to help reduce health disparities. It appears that students recognized their broader professional identity as a future health care professional and not solely as a future dental hygienist.

Limitations

Due to the COVID-19 pandemic, the majority of the CSL experiences discussed in this article were virtual. The literature has referred to these virtual placements as e-service learning.³³ Even though traditional applications of CSL experiences have been on site in the community, it has been reported that community service learning can be performed online.³³ Additional student perspectives may have been noted if CSL experiences had taken place on site and through in-person interactions. Initially, this study planned for focus groups to be held in June 2021 with fourth-year dental hygiene students to serve as an additional data source. However, due to difficulties in recruiting students who had graduated from the dental hygiene program, researchers had to rely solely on one data source. Bowen²⁶ asserts that documents may be used as a single data source for studies designed within an interpretive paradigm or if they are the only viable source. Perspectives garnered from a focus group discussion may have helped to corroborate findings of this current research study and seek convergence.²⁶ Ten students out of a potential 43 were part of the research study. Therefore, results may not provide a comprehensive representation of the entire student experience and are not generalizable to other dental hygiene learning institutions. Furthermore, if different CSL projects are initiated, there is a likelihood that additional learning may occur.

Future recommendation

To deepen collaboration between the community partners and the student groups, it would be a valuable learning experience for students to participate in the community needs assessment phase, followed by the development of project proposals in partnership with the community. Involvement by dental hygiene students in these processes

could provide further opportunities to develop their capacity in the baccalaureate dental hygiene competency domains of advocacy and leadership.

CONCLUSIONS

Findings from this study support the use of CSL as a pedagogical approach in dental hygiene education to connect students' academic course work with community service and to deepen their understanding of the complexity and diversity of our communities. A CSL experience not related to dental hygiene allowed fourth-year dental hygiene students to apply baccalaureate dental hygiene competency domains. CSL increases students' social awareness when they interact with the community in a real-world context that extends beyond the dental hygiene clinical chair. It provides a unique learning experience where learners are stretched beyond structured classroom lessons or textbook readings.

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CONFLICTS OF INTEREST

The authors have declared no conflicts of interest.

REFERENCES

1. Canadian Dental Hygienists Association. *Canadian competencies for baccalaureate dental hygiene programs*. Ottawa (ON): CDHA; 2015 [cited 2022 Sept 2]. Available from: https://files.cdha.ca/profession/CCBDHP_report.pdf
2. Sunell S, Asadoorian J, Gadbury-Amyot CC, Biggar HC. Competencies for Canadian baccalaureate dental hygiene education: a Delphi study, Part 2. *Can J Dent Hyg*. 2015;49(3):101–14.
3. Sunell S, Laronde DM, Kanji Z. Fourth-year dental hygiene students' educational preparedness: Self-confidence ratings of the Canadian Dental Hygienists Association baccalaureate competencies (2017–2019). *J Dent Educ*. 2021;85(6):768–77.
4. Sunell S, Laronde DM, Kanji Z. Dental hygiene graduates' educational preparedness: Self-confidence ratings of the CDHA baccalaureate competencies. *Int J Dent Hyg*. 2020;18(3):295–306.
5. Sheu LC, Zheng P, Coelho AD, Lin LD, O'Sullivan PS, O'Brien BC, et al. Learning through service: Student perceptions on volunteering at interprofessional hepatitis B student-run clinics. *J Cancer Educ*. 2011;26(2):228–33.
6. Hood JG. Service-learning in dental education: meeting needs and challenges. *J Dent Educ*. 2009;73(4):454–63.
7. Dharamsi S, Espinoza N, Cramer C, Bainbridge L, Poole G, Amin M. Nurturing social responsibility through community service-learning: lessons learned from a pilot project. *Med Teach*.

- 2010;32(11):905–911.
8. Schmidt NA, Brown JM. Service learning in undergraduate nursing education: strategies to facilitate meaningful reflection. *J Prof Nurs*. 2016;32(2):100–106.
 9. Flick H, Barrett S, Carter-Hanson C. Oral health on wheels: a service learning project for dental hygiene students. *J Dent Hyg*. 2016;90(4):226–33.
 10. Simmer-Beck M, Gadbury-Amyot G, Williams KB, Keselyak NT, Branson B, Mitchel TV. Measuring the short-term effects of incorporating academic service learning throughout a dental hygiene curriculum. *Int J Dent Hyg*. 2013;11(4):260–66.
 11. Blue CM. Cultivating professional responsibility in a dental hygiene curriculum. *J Dent Educ*. 2013;77(8):1042–1051.
 12. Brondani MA. Teaching social responsibility through community service-learning in predoctoral dental education. *J Dent Educ*. 2012;76(5):609–619.
 13. Lautar CJ, Miller FY. Service-learning and dental hygiene: a literature review. *J Dent Hyg*. 2007;81(3):64–76.
 14. Brydges SC, Gwozdek AE. Assessment of the University of Michigan's dental hygiene partnership with the Huron Valley Boys & Girls Club: a study of students' and staffs' perceptions and service learning outcomes. *J Dent Hyg*. 2011;85(4):316–25.
 15. Stedke S, Beatty CF. Service-learning: preparing dental hygienists for collaborative practice. In: *Community oral health practice for the dental hygienist*, 5th ed. St. Louis (MO): Elsevier; 2021. pp. 261–75.
 16. Resch K, Schritteser I. Using the service-learning approach to bridge the gap between theory and practice in teacher education. *International Journal of Inclusive Education*. 2021;27(10):1118–1132. DOI: 10.1080/13603116.2021.1882053
 17. Sass MS, Coll K. The effect of service learning on community college students. *Community Coll J Res Pract*. 2015;39(3):280–88.
 18. Stewart T, Wubbena Z. An overview of infusing service-learning in medical education. *Int J Med Educ*. 2014;5:147–56.
 19. Faculty of Arts, University of Alberta. Community Service-Learning [homepage on the Internet] [cited 2022 Sept 2]. Available from: www.ualberta.ca/community-service-learning/index.html
 20. Salam M, Awang Iskandar DN, Ibrahim DHA, Farooq MS. Service learning in higher education: a systematic literature review. *Asia Pacific Education Review*. 2019;20(4):573–93.
 21. Burch S. Strategies for service-learning assessment in dental hygiene education. *J Dent Hyg*. 2013;87(5):265–70.
 22. Bringle RG, Hatcher JA. Institutionalization of service learning in higher education. *J Higher Educ*. 2000;71(3):273–90.
 23. Yoder KM. A framework for service-learning in dental education. *J Dent Educ*. 2006 Feb;70(2):115–23.
 24. Boud D, Walker D. Promoting reflection in professional courses: the challenge of context. *Studies Higher Educ*. 1998;23(2):191–206.
 25. Tsang AK. Oral health students as reflective practitioners: changing patterns of student clinical reflections over a period of 12 months. *J Dent Hyg*. 2012;86(2):120–29.
 26. Bowen GA. Document analysis as a qualitative research method. *Qual Res J*. 2009;9(2):27–40.
 27. Creswell J. *Research design: qualitative, quantitative, and mixed methods approaches*, 3rd ed. London: Sage; 2009.
 28. Marshall JH, Lawrence EC, Lee Williams J, Peugh J. Mentoring as service-learning: The relationship between perceived peer support and outcomes for college women mentors. *Studies in Educational Evaluation*. 2015;47:38–46.
 29. Yorio PL, Ye F. A meta-analysis on the effects of service-learning on the social, personal, and cognitive outcomes of learning. *Academy of Management Learning & Education*. 2012;11(1):9–27.
 30. McLeod PL. Experiential learning in an undergraduate course in group communication and decision making. *Small Group Res*. 2013;44(4):360–80.
 31. Levkoe CZ, Friendly A, Daniere A. Community service-learning in graduate planning education. *J Plan Educ Res*. 2020;40(1):92–103.
 32. American Dental Education Association, Institute for Higher Education Policy. *Bracing for the future: Opening up pathways to the bachelor's degree for dental hygienists*. Washington (DC): ADEA and IHEP; 2011 [cited 2022 Sept 2]. Available from: www.adea.org/policy_advocacy/workforce_issues/documents/IHEP2011.pdf
 33. Waldner LS, McGorry SY, Widener MC. E-service-learning: The evolution of service-learning to engage a growing online student population. *J High Educ Outreach Engagem*. 2012;16(2):123–50.